

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the planes ( $E_1, E_2, E_3$ ) must be shown or the feature(s) canceled from the claim(s). It is unclear how the line labeled by the applicant is considered a plane as a plane is a two dimensional representation not a single line one dimensional representation as shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: The specification should not directly reference claims, because the claims can change during the examination process. The specification should include headings for the appropriate sections as described in CFR 37 § 1.77. The list of items on page 7 and 8 of the specification should be removed because it is not necessary since those items have already been mentioned in the specification.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 19, and 22-26, 30 and 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 19 and 36, the applicant makes claims referencing different planes (E<sub>1</sub>, E<sub>2</sub>, E<sub>3</sub>). It is extremely unclear as to what planes the applicant is defining as

there could be an infinite amount of planes drawing through the axes. When interpreting the planes in light of the specification the examiner is further confused since there is no clear reference to a plane. In the drawings the applicant labels the axes A and B as planes. A line is a one dimensional representation where as a plane is a two dimensional representation. A plane is defined by the non-collinear points or other equivalent definitions as described in the following references:

- <http://www.mathwords.com/p/plane.htm>
- <http://www.mathsisfun.com/geometry/plane.html>
- <http://mathworld.wolfram.com/Plane.html>

Therefore, the examiner can not interpret what planes the applicant is referring to.

Regarding claims 22-25, and 30, the applicant makes claims referencing a baseplate and holding plates. When interpreted in light of the specification, the examiner is very unclear and confused as to the difference between these components. It is unclear whether the holding plates are independent components or just part of the baseplate. In the figure disclosed by the applicant it appears that the holding plates and the baseplate are the same component. For purposes of examination, the examiner will baseplate as being equivalent to the framed element and disregard the holding plates.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 19- are rejected under 35 U.S.C. 102(b) as being anticipated by Bailey, Jr.. Bailey, Jr. discloses a similar device (see figure below).

***Regarding claim 19,***

- Bailey, Jr. teaches an apparatus (fig. 2) comprising a handle (fig.2, Item # 11) which is mounted upon two substantially perpendicular axes A (fig. 2, Item# 17) and B (fig. 2, Item# 21).

***Regarding claim 20,***

- Bailey, Jr. teaches an apparatus (fig. 2) comprising a handle (fig.2, Item # 11) which is mounted upon two substantially perpendicular axes (fig. 2, Items# 17 and 21). The applicant invokes 35 USC § 112<sup>th</sup> 6<sup>th</sup> paragraph in regard to a “holding means for holding a force sensor”. The examiner will apply the same analysis to holding means in future claims unless the language no longer fits 35 USC § 112<sup>th</sup> 6<sup>th</sup> paragraph. Therefore, Bailey, Jr. discloses a plate (fig.2, Item# 80) for holding a force sensor which is on axis A (fig. 2, Item# 17), and wherein the force sensor (fig.2, Item# 25) is arranged centrically, and offset vertically upwards with respect to axis A.

***Regarding claim 21,***

- Bailey, Jr. teaches a frame element (fig. 1, labeled by examiner) which is provided with two drive elements (fig.2, Items# 26 and 29) which act at substantially right angles to each other as depicted via figure 1 and 2.

***Regarding claim 24,***

- Bailey, Jr. teaches a first drive element (fig. 1, Item# 26) being connected to the baseplate and a second drive element fixed to the baseplate. The holding means is arranged within the baseplate as seen in figure 2 and can pivot about the axis A (col. 7, lines 40-46)(col.6, lines 37-39).

***Regarding claim 25,***

- Bailey, Jr. teaches a second drive element discussed above being connected to the baseplate and at approximate right angles to the first drive element as discussed in previous claims.

***Regarding claim 26,***

- Bailey, Jr. teaches the drive elements being connected to the frame element as depicted via figures 1 and 2 and are at right angles to each other on axis A and B. Axes A and B are offset by a distance of  $\Delta x$  (not labeled). Since  $\Delta x$  can be any value, it can clearly be zero in this case or in terms of angles, it can be 90 degrees.

***Regarding claim 28,***

- Bailey, Jr. teaches the first drive element (fig.2, Item# 26) connected to the holding means via an output flange (fig. 2, labeled by examiner), on which

holding means and a handle are seated and wherein the handle is connected to the force sensor as shown in figure 2.

**Regarding claim 29,**

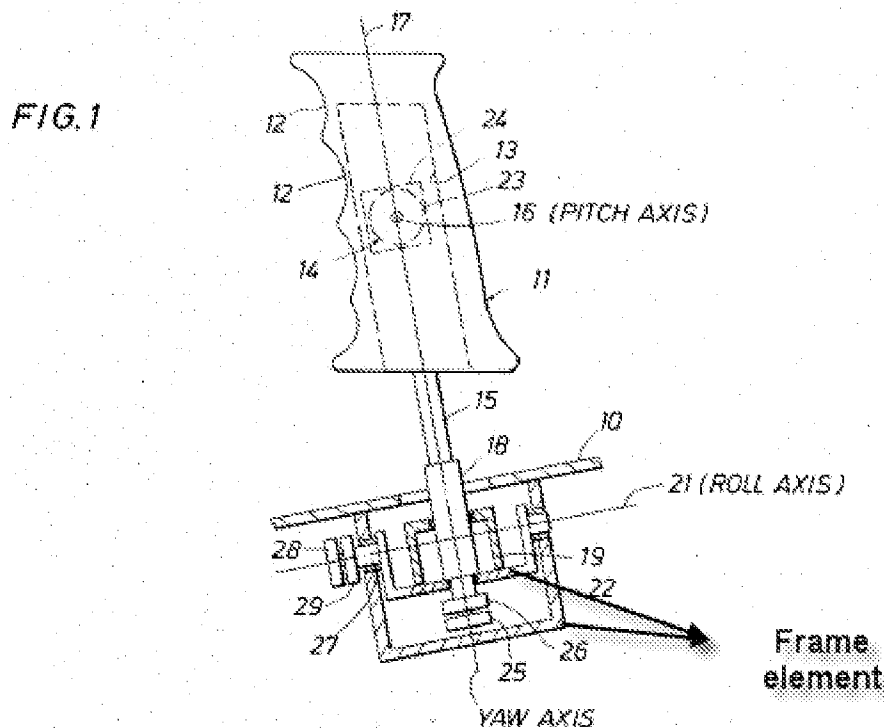
- Bailey, Jr. discloses a holding means being a plate as labeled in figure 2, which is pivotable about the axis A discussed above and is fitted with the force sensor.

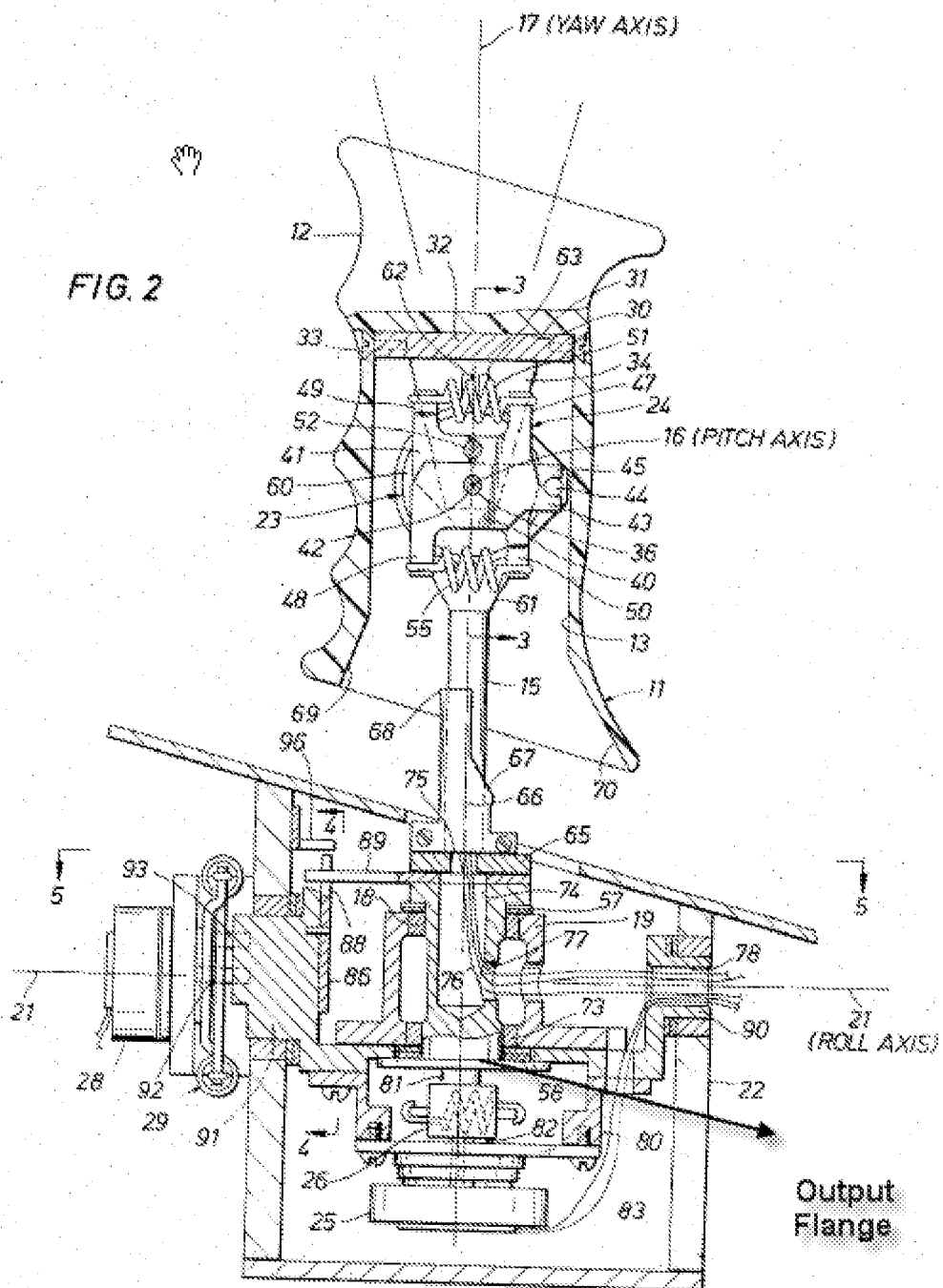
**Regarding claim 31,**

- Bailey, Jr. teaches that the handle is pivotable about axes A and B (col.3) by means of the drive elements discussed above.

**Regarding claim 32,**

- Bailey, Jr. teaches that the drive elements and force sensor allow for a force feedback mechanism (col. 3, lines 42-62).





***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey, Jr.. Bailey, Jr. teaches a boxlike frame as depicted in figure 2. It would be obvious to omit certain parts of the frame such that you'd be left with a U-shaped baseplate if it were to be structurally reasonable.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey, Jr. in view of Marcus et al.(US patent 6004134).

Bailey, Jr. teaches a similar device disclosed by applicant and described above in this office action.

Bailey, Jr. fails to teach that the drive elements are formed with an electronic control device with integrated force control, motor control, electric motor and downstream transmission.

Marcus et al. teach a joystick device with an electronic control device (seen in the figure below and described in col. 1, lines 36+) comprising integrated force control and motor control via the electric motor (fig.6, Items# 50, 62) and a downstream



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transmission(fig. 6, Items# 52). This electronic control device is used for the purpose of providing force feedback to the user. (col.2, lines 1-3)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Bailey, Jr. to include the teachings of Marcus et al. for the purpose of creating a joystick with a fully integrated electric control device with an electric motor or driving means.

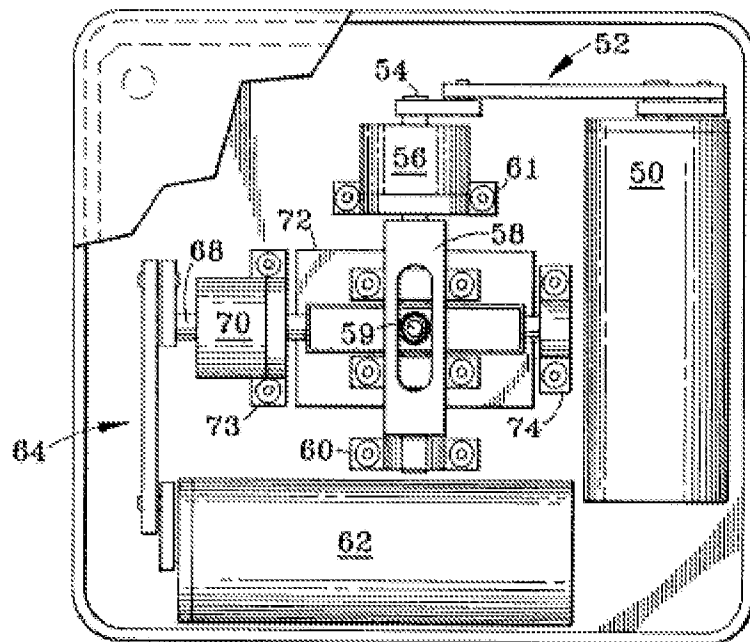


FIG. 6

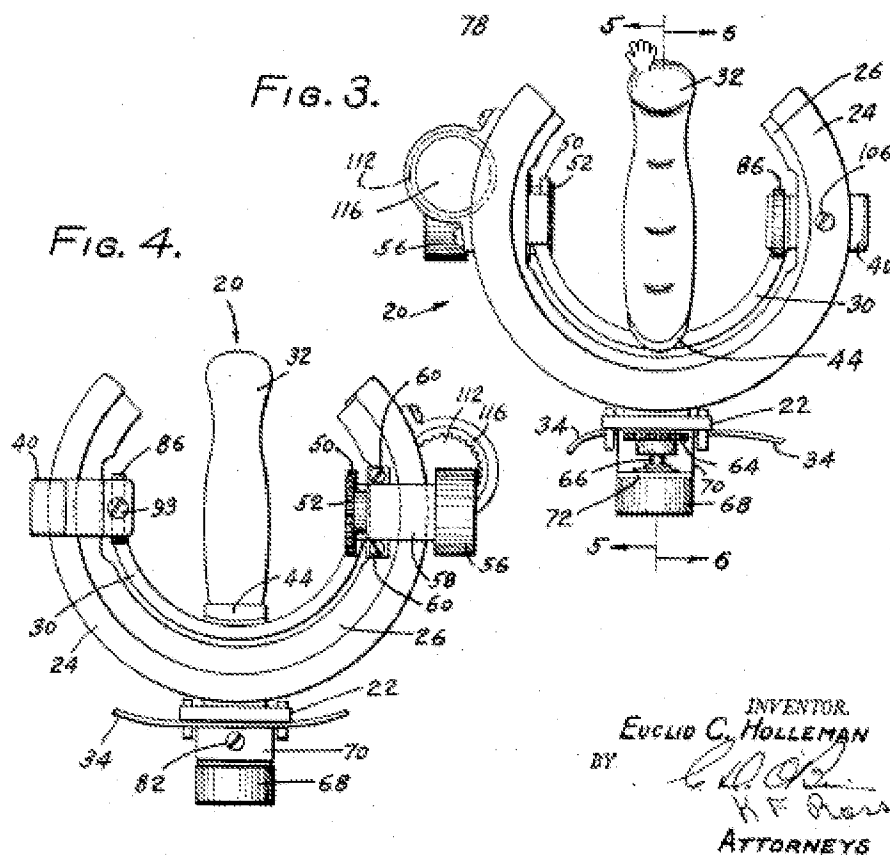
10. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey, Jr. in view of Holleman. (US patent 3028126).

Bailey Jr. teaches a joystick device discussed above, comprising a second holding plate (fig.2, small right plate of housing Item# 22).

Bailey, Jr. fails to teach a counterweight or balance weight.

Holleman teaches a counterweight or balance weight (fig. 3, Item# 40) for the purpose of balancing the effect of inertial forces acting about the center of rotation of the joystick disclosed.

Thus, it would have been obvious to someone of ordinary skill at the time of the invention to modify the teaching of Bailey, Jr. to include a counterweight as disclosed by Holleman on the holding plate described above for the purpose of counter balancing the forces generated by the weight of the other components in Bailey's joystick device. The balance weight could be placed anywhere it would be optimal, a possibility being on the axis A in such a way that it's center of gravity lies on that axis.



11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey, Jr.. Bailey, Jr. teaches that the invention is used for a flight craft (col.1 line 13). Thus it would be obvious that the device would be mounted in the vehicle with all its components within, including the second drive element.

12. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey, Jr.. Bailey, Jr. teaches that axes A and B, as discussed above are offset with respect to each other. It would have been obvious to one of ordinary skill in the art at the time of the invention to offset the axes above or below one another in order to optimize their location with respect to one another.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art discloses similar joystick devices, with counterweights and force feedback elements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Diaz whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Thursday 7:30am-6:00pm, Friday's off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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